

## OCCURRENCE OF ANT SPECIES IN A RANGE OF SCLEROPHYLL FOREST COMMUNITIES AT OLD CHUM DAM, NORTH-EASTERN TASMANIA

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### Abstract

There are an estimated 150 species of ants in Tasmania with five of the nine Australian subfamilies being represented (B. Lowery unpubl. data). Very little published information is available on their distribution or habitat preferences. This paper reports on a short survey of the ants found in different sclerophyll forest communities around Old Chum Dam (41°06'S, 148°03'E) in north-eastern Tasmania.

### Introduction

Field work was undertaken on 14-15.i.1992. Most time was spent in forest on the south-eastern facing slopes to the north of Old Chum Dam. One site was also examined in forest SW of the dam. Altitude varies from 100-250 m. Geology of the area is Ordovician granite. The main eucalypt present is *Eucalyptus obliqua* L'Herit. *E. amygdalina* Labill. is subdominant over much of the area and dominant in some flatter drainage lines. *E. viminalis* Labill. is widespread but uncommon. Understorey on most upper and middle slopes is very open being dominated by bracken *Pteridium esculentum* (Forst.f.) Cockayne. The undergrowth is shrubbier on slopes above creek lines and gullies with *Acacia verticillata* (L'Herit.) Willd., *Olearia lirata* (Sims.) Hutch. and *A. terminalis* (Salisb.) Macbr. being most common. Vegetation along creeklines is of two major types. Blackwood (*A. melanoxylon* R.Br.) gully forest occurs along steep gullies and in some well drained stream flats. Sassafras (*Atherosperma moschatum* Labill.) is present in some of these sites. *Dicksonia antarctica* Labill., *Olearia argophylla* (Labill.) F.Muell., *Pomaderris apetala* Labill., *Coprosma quadrifida* (Labill.) and *Bursaria spinosa* Cav. form a dense medium to tall shrub layer. The second type has an undergrowth dominated by dense tea-tree scrub consisting of *Melaleuca squarrosa* Don ex Smith and *Leptospermum scoparium* Forst. & Forst. f. and is associated with basins and soakages with impeded drainage.

About 85 ha of the site had been logged about 12 months prior to the survey. A 100 m wide strip of forest was retained within the logged area. This strip was located on a watercourse along a blackwood gully and then ran up the slope and along the ridge top to connect with unlogged forest in the adjoining catchment. The logged area, much of the retained strip and some as yet unlogged forest were burnt by a hot wildfire on 15.x.1991. A length of around 250 m of the retained strip, where the blackwood gully was deeply incised, remained unburnt.

Six sites were surveyed. This involved searching an area for between 30 minutes and one and a half hours, with rocks and logs being overturned and galleries examined. The sites were:

- A. Blackwood gully in the retained strip where it had survived the burn.
- B. Blackwood gully in a drainage line in the saddle of upper slopes.
- C. Open bracken site nearby tea-tree gully, nearly flat, plenty of rocks and sunny position.
- D. Ridge top, flat, rocky, open bracken undergrowth.
- E. Open to medium density, bracken-dominated undergrowth, nearby tea-tree gully, rocks and logs common, south-west of dam.
- F. Unlogged patch (approximately 2 ha) within logged area, severely burnt.

### Discussion

Sites under rocks and in rock crevices, sometimes covered by moss, and in bare soil most often supported colonies. Few species were found in or under logs and fewer still in patches of bracken. Only one species, (*Camponotus hartogi*), was found nesting arboreally, in dead branches and rotting stumps. The major determinant of the presence of ants appeared to be the amount of direct sunlight reaching the ground rather than the presence of rocks, logs or bare soil.

The taxonomy of many groups of ants is still uncertain and complexes probably exist in certain species as presently defined. We have followed usage in Shattuck (1992) for the Dolichoderinae and Andersen (1991) for other groups. The ant species found in each of the sites is shown in Table 1. A total of 33 species were recorded. However, experience (by B.B.L.) collecting in similar sites close by indicate that it is likely that more species would be found on the study area with further searching. A further 11 species were found at a similar site 10 km to the north east. These were *Rhytidoponera tasmaniensis* Emery, *Polyrhachis patiens* Santschi, *Myrmecorhynchus emeryi* Andre, *Monomorium leae* Forel, *Ochetellus punctatissimus* (Emery), *Camponotus claripes* Mayr, *Stigmacros* sp. (black), *Stigmacros barretti* Santschi, *Camponotus consobrinus* Erichson, *Pheidole* sp. (red) and *Pheidole* sp. (black).

Forest on well-drained open slopes and ridges supported the highest numbers of species and the largest colonies, particularly sunny rocky sites. In the gullies there were fewer species, far fewer colonies, smaller population sizes per colony and species that are more cryptic in their habits. However, eight of the 14 species found in the blackwood gullies were only found here. Five of these were uncommon species and four of them occurred deep under large rocks. One of these, the undescribed genus, has been very rarely collected. It was previously known from only a few specimens collected in N.S.W. and Victoria. The collection from the present site includes most of a colony.

**Table 1.** Ant species found at six sites located in the vicinity of Old Chum Dam in north-eastern Tasmania.

SPECIES	SITE					
	A Blackwood gully lower slope	B Blackwood gully upper slope	C Open Bracken rocky	D Open Bracken rocky ridge	E Open Bracken south of dam	F Open Bracken burnt
<b>DOLICHODERINAE</b>						
<i>Anonychomyrma biconvexa</i> (Santschi)		+	+	+	+	
<i>A. itinerans</i> (Lowne)			+			+
<i>A. nitidiceps</i> (Andre)					+	
<i>Tapinoma minutum</i> Mayr				+		
<b>FORMICINAE</b>						
<i>Camponotus hartogi</i> Forel			+	+	+	+
<i>Melophorus</i> sp.					+	
<i>Notoncus ectatommoides</i> (Forel)			+			
<i>N. spinisquamis</i> Andre		+				
<i>Paratrechina tasmaniensis</i> (Forel)			+			
<i>Prolasius nitidissimus</i> (Andre)		+	+	+	+	+
<i>Prolasius</i> sp. A			+			
<i>Prolasius</i> sp. B		+				
<i>Prolasius</i> sp. C		+				
<i>Prolasius</i> sp. D					+	
<i>Stigmacros</i> sp.			+	+	+	
<b>MYRMECIINAE</b>						
<i>Myrmecia esuriens</i> Fab.				+	+	
<i>M. forficata</i> Fab.			+	+	+	+
<i>M. fulvipes</i> Roger			+	+	+	
<i>M. pilosula</i> F. Smith complex			+	+	+	+
<b>MYRMICINAE</b>						
<i>Monomorium flavigaster</i> (Clark)						+
<i>Monomorium sculpturatum</i> Clark	+					
<i>Monomorium</i> sp.	+					
<i>Orectognathus clarki</i> Brown					+	
<i>Solenopsis froggatti</i> Forel	+	+	+	+	+	+
<i>Strumigenys perplexa</i> F. Smith	+				+	
<b>PONERINAE</b>						
<i>Amblyopone australis</i> Erichson		+	+	+	+	+
<i>A. punctulata</i> Clark		+				
Undescribed genus <sup>1</sup>	+					
<i>Hypoponera</i> sp. A (brown)	+		+	+	+	
<i>Hypoponera</i> sp. B (red)			+	+	+	
<i>Myopias tasmaniensis</i> Wheeler		+				
<i>Rhytidoponera victoriae</i> Andre			+	+	+	+
<i>Sphinctomyrmex steinheili</i> Forel	+		+		+	
No. of Species	8	8	17	14	19	10

<sup>1</sup>This genus is closest to *Cryptopone* and *Myopias* but does not fit comfortably within these as presently defined.

These patterns accord with the findings of Andersen (1986) for mesic south-eastern Australia where species composition changes from drier to mesic sites with cool-climate specialists and cryptic species dominating in the wetter forests.

The burnt site held fewer species and many fewer individuals than the unburnt sites. However, it is interesting that 10 species had managed to survive (or rapidly colonise) a site burnt by a hot fire three months previous. However, this contrasts with the findings of Andersen (1985, 1988) who found that the number of species increased after fire in both woodland and semi-arid mallee.

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